DOCUMENT RESUME

ED 221 900 CS 503 976

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TITLE Testing Within-Group Interaction Differences between High and Low Consensus Groups.
PUB DATE Nov 82
NOTE 38p.; Paper presented at the Annual Meeting of the Speech Communication Association (68th, Louisville, KY, November 4-7, 1982).

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Behavior Patterns; *Communication (Thought Transfer); *Communication Research; Decision Making; *Group Behavior; *Group Dynamics; Group Unity; Higher Education; *Interaction Process Analysis
IDENTIFIERS *Consensus

ABSTRACT

To assess whether communication behaviors differ between high and low consensus groups, a study considered the comparative interaction of the first meetings of high and low consensus groups, the first and final meetings of high consensus groups, and the first and final meetings of low consensus groups. Subjects, 84 students in a small group communication course, were divided into 19 groups and were given an assignment structured so that their levels of consensus could be determined. The tape recorded interactions of the first and last meetings of groups determined to be of high and low consensus were coded on both the relational and the content levels of communication. While interaction was significantly different for all comparisons using the Fisher Interaction Analysis System of Coding (FIAS), Relational Communication System (RELCOM) coding demonstrated significant differences only for the initial high and low consensus group meetings. Although somewhat confusing, these findings do provide some evidence to support the belief that some interaction patterns are characteristic of groups that achieve consensus. Perhaps these results indicate the presence of compositional differences affecting group formation or a problem with the coding systems employed; in any case, more research is needed. (JL)

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TESTING WITHIN GROUP INTERACTION DIFFERENCES BETWEEN HIGH AND LOW CONSENSUS GROUPS

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The study considers the comparative interaction of the first meetings of high and low consensus groups, the first and final meetings of high consensus groups, and the first and final meetings of low consensus groups. Results indicated that the interaction was significantly different for all comparisons with Fisher Interaction Analysis System coding. However, Relational Communication System coding demonstrated significant differences only for the initial high and low consensus group meetings.

CS503976

Testing Within Group Interaction Differences
Between High and Low Consensus Groups

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Group researchers typically consider some degree of consensus an inevitable outcome of group decision-making. This common sense conclusion based upon the premise that groups as a whole and group members as individuals will always have some feeling about the decision the group made has led to a plethora of research which studies various compositional factors and their resulting effect upon consensus. Subsequently, most previous research posits questions which are inappropriate from a communication perspective and therefor reveal very little about the nature of ongoing interaction in groups with varying levels of consensus. In particular, no previous research attempts a comparison of high and low consensus interaction patterns at the onset of a group's existence, nor does any inquiry compare the discussion of initial and final meetings of high and low consensus groups.

Altering the composition of a group and then measuring the resultant degree of consensus reached by the group seems to be the most popular approach to consensus research. Despite the number of studies, the research reflects little consistency in variables studied or results obtained from these investigations. The only consistent characteristic of these studies was the measurement of some internal psychological quality of the members and the altering of the group's composition on that basis. At the end of the alloted group time, which was typically a 30 to 60 minute meeting, a group decision was demanded and the subjects filled out semantic differential type scales indicating how strongly they agreed with the group's decision. In this manner, seven separate compositional variables have been related to consensus: member expertise (Hare, 1952); member talka-

tiveness (Burgoon, 1977; Reicken, 1958); member need for control (Levine, 1973); role/power satisfaction (Geonetta & Gouran, 1977; Hrycenko & Minton, 1974); self orientation (Nemiroff & King, 1975); trust of others (Klimoski & Karol, 1976); and member dogmatism (Weed, Mitchell & Moffit, 1976).

Hare (1952) considered the extent to which the amount of the assigned leader's demonstrated expertise in the decision area affects member agreement with the group decision. Member expertise was varied by giving the leader differing amounts of information about the discussion before the group meeting. Hare also varied the number of people in the group and examined the leader's expertise as it affected consensus in five and twelve person groups. Study results demonstrate that the amount of leader expertise in a specific problem area correlated positively with the degree of consensus in twelve-person groups, but did not affect consensus in five-person groups (Hare, 1952, p. 262).

Reicken (1958) gave members with high or low talkativeness tendencies "hints" revealing the best solution to the assigned problem and then measured the degree of member satisfaction with the group decision. He concluded that when supplied with the best answer, low talkative members were least satisfied with the group decision while high talkative members exhibited moderate decision satisfaction. Burgoon (1977) varied the number of group members who possessed the characteristic of high or low tendency towards talkativeness and measured the resulting degree of group decision agreement and satisfaction. She found that as the proportion of reticent members increased, decision satisfaction decreased. Therefore, the conclusion appears to be that the more talkative members that comprise a group's membership, the more likely a high degree of consensus will be reached.

Levine (1973) varied the composition of groups on the basis of member need for control. The homogeneous groups consisted solely of members with either high need for control and risk-taking or low need for control and risk-taking. He found that groups needing high control and risk-taking tended to exhibit more solidarity and agreement, less tension, more disagreement and more decision satisfaction than did groups needing low control and risk-taking.

Hrycenko and Minton (1974) measured how satisfied group members were with the total group performance and related that satisfaction to the individual's

power position within the group. They concluded that satisfaction with one's assigned power position accounted for most of a subject's satisfaction with the group and the group's decision. Geonetta & Gouran (1977, p. 51) also investigated to what degree the centralization of the group's status hierarchy affected consensus. In contrast to Hrycenko and Minton (1974), they found that mean agreement with the decision scores demonstrated no significant differences in the consensus of groups possessing centralized or decentralized networks. The question of effects of power structure upon consensus remains unresolved.

Nemiroff and King (1975, p. 7) varied the composition of the group on the basis of member personality characteristics. They thus formed homogenous high and low self-oriented groups some of which were instructed to reach complete agreement and some of which were not so instructed. The inquiry considered the length of time of interaction and the accuracy of the decisions as those two variables related to member satisfaction with the group decision. However, findings proved inconclusive as Nemiroff and King (1975, p. 13) found the personality characteristics of high or low self-orientation did not correlate highly with the degree of member satisfaction. Klimoski and Karol (1976) produced a more thorough than usual study of member personality traits upon consensus by using a two stage examination of member perceptions and behavior as those two variables related to consensus. They measured individual trust of other group members, and correlated that trust to information flow among group members. They found that the less information flow, the lower member satisfaction with the group decision tended to be.

Weed, Mitchell and Moffitt (1976) measured the subject's degree of dogmatism and then examined post decision member satisfaction with both the group leader and the group decision. They found that variation of member and/or leader dogmatism failed to correlate with differences in member satisfaction with either the leader or the group decision.

As the preceding studies indicate, no consistent focus exists in the literature which examines compositional variation in test groups and subsequent effects of such variation upon consensus. The extensive diversification typifies a major weakness of previous consensus research: the lack of justification for a particular study's approach to consensus. Succinctly stated, the conclusion of compositional studies has been "some variables were associated with consensus fluctuations, while other variables were not."

The investigations did not demonstrate any consistent approach to the study or consensus, nor were any conclusive answers about the nature of the consensus found.

A small body of literature which examines the communication of small groups with different levels of consensus does exist. However, none of the communication consensus research presents a theoretical rationale for the methods used, and typically the studies have a very small data base--usually a single thirty minute group meeting (Godwin & Restle, 1974; Gouran, 1969; Gouran & Geonetta, 1977; Kline & Hollinger, 1973; Saine & Bock, 1973; Sakuri, 1975). With the exception of Gouran and Geonetta's (1977) examination of all communicative acts by means of chi-square analysis, the treatment of the communication has either been overly subjective (Saine & Bock, 1973) or has crudely treated the sequentiality of the data (Godwin & Restle, 1974; Gouran & Geonetta, 1977; Sakuri, 1975). This shortcoming becomes a major conceptual weakness if one believes a group to be an ongoing interaction system structured by the relationship among the communicative acts occurring during discussion (Fisher, Drecksel & Werbel, 1979).

Although any of several theoretical perspectives could be employed to investigate communication and consensus, the present study is couched in the framework of systems theory and the pragmatic perspective of communication (Watzlawick, Beavin & Jackson, 1967; Fisher, 1978; pp. 194-233).

Central to this theoretical perspective is the conception of the group as a social system of individuals bound together by communicative patterns. As individuals act toward and with one another in the group, their interactions serve to organize their relationships in that setting (Fisher, et. al., 1979, p. 4). Weick (1969, pp. 45-46) uses the term "collective structure" to indicate the social relationship created by the exchange of communicative behaviors to form interaction patterns. Watzlawick, et. al. (1967, p. 34) suggest that these interaction patterns are actually behavioral constraints which individuals insert into a social system. They suggest that "pattern," "constraint," and "redundancy" are virtually interchangeable terms, so that the interaction patterns observable by empirical redundancies are the defining characteristics of the social system. They state, "The observer of human behavior then turns from an inferential study of the mind to the study of the observable manifestations of the relationship" (p. 21).

To discover the interact correlates of consensus is to investigate what, if any, interact patterns are characteristic of groups achieving high consensus and are not evident in the patterns of groups achieving low consensus. Conversely, an investigation might also result in discovering interaction patterns characteristic of low consensus groups, but which are not evident in high consensus groups. The principle research issue in the present study, then, is the search for interact correlates of consensus.

None of the compositional examinations of consensus attempt to assess whether communication behaviors differ between high and low consensus groups, and none of those studies which consider actual group interaction seek to discover whether group communication of high and low consensus groups change over time. Based upon the conclusions of previous research, certain expectations do precede this particular study. For example, based on conceptual assumptions and previous research, interaction differences between the first and final meetings of high consensus groups are anticipated, while no significant interaction differences are expected for the first and final meetings of low consensus groups. Moreover, the initial meetings of high and low consensus groups should not significantly differ. In order to discover whether these expectations proved sound, the following three research questions were proposed and tested.

Are the interaction patterns of high consensus groups during the initial stage of task performance significantly different from the interaction patterns of low consensus groups during the initial stage of task performance?

The primary assumption of communication research which focused on the development of work groups was that all groups started at essentially the same point and progressed through the same stages of task performance (Bales, 1950; Bales and Strodtbeck, 1951; Fisher, 1970; Hare, 1976; pp. 88-112; Slater, 1966). The developmental studies created expectations of no significant interaction differences between high and low consensus groups during their initial meetings. Theodorsen's (1953) findings that high and low consensus groups go through essentially the same phases during discussion led to the conclusion that the interaction during the groups' initial meetings should be quite similar.

Are the interaction patterns of high consensus groups during the final stage of task performance significantly different from the interaction patterns during the initial stage of task performance?

Hare (1976, pp. 88-112) discussed the study of development of decision-making groups in considerable detail. He clearly indicated that successful groups changed over time as they developed norms, roles and their decision. Because groups develop different types of relationships and deal with different aspects of the task at initial and final meetings, the interaction sequences characteristic of the initial and final meetings should also be significantly different in those groups. For example, the first group meeting of a high consensus group might be expected to include significant amounts of ambiguity and agreement, whereas the final meeting might include interaction sequences consisting of agreement and general statements supporting the decision proposal (Fisher, 1970).

Are the interaction patterns of low consensus groups during the final stage of task performance significantly different from the interaction patterns during the initial stage of task performance?

Previous consensus research has indicated that some groups reached only low levels of consensus, and that those groups were in some way unlike high consensus groups. Theodorsen (1953) has suggested that given sufficient time to solve a problem, low consensus groups may develop in much the same manner as high consensus groups. However, no exhaustive study of the development of nonsuccessful groups existed in the literature, so it was most logical to assume that either a low consensus group experiences changes different from high consensus groups, or that low consensus groups experience little development at all. In light of previous research which indicated the effect of initial compositional characteristics upon the reaching of consensus (Burgoon, 1977; Geonetta & Gouran, 1977; Hare, 1952; Hrycenko & Minton, 1974; Klimoski & Karol, 1976; Levine, 1973; Nemiroff & King, 1975; Weed et al., 1976), it seems most logical to assume that what happens in the initial meeting remains constant throughout the group's history. In other words, low consensus groups experience little development.

Because of the preliminary nature or this study, the assumption of no interaction differences until such differences are exposed made sense. That is, if no interaction differences were known to exist between initial and subsequent low consensus interaction (and Theodorsen proved none), then one may logically assume continuation of the status quo: that no interaction differences are expected.

Methodology

All groups in the basic small group course were audiotaped, and all group members filled out the consensus instrument. A total of nineteen zero-history groups containing eighty-four students was created. All groups had mixed sex and age composition and no group contained more than six or less than four members. No initial ascribed status existed in any of the groups.

All groups were required to select a social problem, investigate it and develop a solution. The problem's solution was presented to the instructor in document form. All individuals in the group received the same grade regardless of the amount of effort any member put into the project. From the time all groups formed until the project was due was approximately three weeks. The time constraint and the pressure of working for a grade were the major external pressures affecting group discussion.

Because commitment to the group decision was not required of group members, this study employed satisfaction and agreement with the decision as its definition of consensus. All four questions of the instrument were answered on a one to five scale with one as "not at all"; two as "very little"; three as "not sure"; four as "a lot"; and five as "almost completely". The four questions which each used this scale were:

1. To what degree do you support the group's solution to the problem you investigated?
2. To what degree do you support the group's selection of the problem you investigated?
3. How satisfied were you with the division of labor in completing your group project?
4. In general, how satisfied are you with your group right now?

The group average on each question was a separate indicator of the degree of group consensus. The group mean score on each of the four questions was used because the slight variation in group size caused raw scores to be sensitive to group size. Groups which were in the top quartile were considered high consensus groups. Groups which were in the bottom quartile on the questions were considered low consensus groups. Gouran and Geonetta (1977) and Saine & Bock (1973) used top and bottom quartiles in their studies because the quartiles clearly separated high and low consensus groups. This study used quartiles to assure a distinct difference existed between groups who possessed strong decision agreement and those who reached low decision agreement.

Implementation of concurrent indicators of degree of consensus was the final check on the sensitivity of the consensus measure. If a group was in the bottom on one scale, it would also have to be on the bottom quartile on all scales and vice versa. The results demonstrated that this was in fact the case.

Levels of Consensus

After the scores were averaged, each question's scores were ranked from high to low. From this ranking the top and bottom quartiles were designated for each question. On this basis five high and five low consensus groups were selected for interaction analysis. The standard deviations of the questions were as follows: question one, .6053; question two, .6473; question three, .5704; and question four, .8186.

Although the high consensus groups clearly reflect a high level of consensus, the groups designated as low consensus were not clearly in disagreement or dissatisfied with the group outcome. To be more specific, the high consensus groups responded to the measuring instrument with an average of 4.613 (maximum = 5.0) to all four questions; whereas the average answer of low consensus groups was 3.355. Even though the range of answers is not extreme, the low consensus groups did respond to the questions with an average only slightly above the neutral position of 3.0. It might be argued that an indication of low consensus is not so much a negative version of consensus as an expression of apathy or neutrality. If this is true, the range from 1.0 to 5.0 may be unrealistic, and the more reasonable range of low consensus to high consensus may be 3.0 to 5.0. In either case, the high and low quartiles were considered a sufficient range to discriminate high and low consensus groups.

The tape recorded interactions of the first and last meeting of high and low consensus groups were coded on both the relational and content levels of communication. Previous consensus research has pointed to the importance of both levels of interaction in reaching consensus. Furthermore, Watzlawick, et. al., (1967) indicated that both dimensions were integral aspects of human communication. Recent studies have also indicated that at the relational level one's power position within the group and the leader's behavior were related to consensus. The content level was also important in reaching consensus because the primary focus of consensus was the group's decision. Examination of both levels of communication was considered vital to an holistic analysis

of the group interaction characteristic of differing consensus levels.

RELCOM

Ellis' (1976) RELCOM interaction analysis seemed most appropriate for studying the relational level in the consensus process for three reasons. First, RELCOM assumed relational control to be a function of communication and also used the categories of one-up and one-down suggested by Watzlawick, et. al. (1967). Second, RELCOM tapped the status distinctions typical of decision-making groups through analysis of the one-up and one-down control modes of complementary interaction. Third, RELCOM was needed to determine whether consensus was relevant only to the issues under discussion, or to determine the possibility of consensus having counterpart in the relational interaction patterns of small group discussion.

Ellis' (1976) system consisted of five categories·

Dominance (↑+) Attempt to severely restrict or limit other's behavioral options.

Structuring (↑−) Attempt to restrict other's options, but leaving a variety of behavior options open.

Equivalence (→) Attempt to mutual identification.

Deference (↓−) Expressed willingness to relinquish options while maintaining some choice.

Submissiveness (↓+) Expressed willingness to relinquish options while maintaining little choice.

FIAS

Fisher's (1970) category system focused on the decision proposals and was highly appropriate for the study of consensus because as usually defined, consensus meant agreement with the group's final decision proposal. Not only did Fisher's Interaction Analysis System (hereafter referred to as FIAS) specifically relate to the content of the group discussion, but it also included a specific index of agreement and disagreement with the decision proposals under discussion. Under the Human Systems Model (Fisher & Hawes, 1971) approach to consensus, the most common component of consensus was agreement or disagreement with the decision-proposal. Therefore, FIAS provided a direct bridge between the HSM and ISM approach to consensus studies. The seven major FIAS categories were:

Interpretation - simple value judgment without evidence, examples or explanation.

Substantiation - value judgment including supporting evidence or reasons

Clarification - both requesting and giving of statements rendering the decision proposal more concrete

Modification - direct amendments of the decision proposal

Agreement - support of statements commenting on the decision proposal

Disagreement - nonsupport of statements commenting on the decision proposal

Procedural - statements dealing with meeting procedures

Three coders were used to gain reliability of the coding systems. Reliability was determined by Geutzkow's (1950) formula, prior to RELCOM coding included: .9127 for raters one and three; .9360 for raters one and two; and .8944 for raters two and three. The mean reliability was .9144. Reliability was based upon the coding of 150 acts into RELCOM's five categories by all three raters. For FIAS reliability was: .8995 for raters one and three; .9267 for raters one and two; and .8768 for raters two and three. Mean reliability was .9010. Reliability was based upon the coding of the same 150 acts into FIAS's seven categories by all raters. All coding of the high and low consensus groups' interaction was done from the tapes. After coding, the data were pooled.

After three weeks of coding during which rater one did all the coding and raters two and three did not use the system at all, a check on reliability deterioration was performed. For RELCOM, reliability was: .8162 for raters one and three; .7876 for raters one and two; and .7383 for raters two and three. The mean reliability was .7807. Coding was done on a new set of 150 statements from the groups' interaction. For FIAS, reliability was: .8225 for raters one and three; .7664 for raters one and two; and .7854 for raters two and three. The mean reliability was .7914. Coding was done from the same set of 150 statements that the RELCOM coding came from. The deterioration may be explained by the fact that raters two and three did not do any coding for the entire three week period. All coding was performed by rater one, and the other raters were employed only as reliability checks.

The coded interaction data were first submitted to Markov analysis (Attneave, 1959; Garner, 1962; Hawes & Foley, 1973; Kullback, Kupperman & Ku, 1962). Markovity indicated at which level or order of Markov chains to

make the analytical comparisons for stationarity and homogeneity. This test for order resulted in the visual display of the interaction sequences in matrices which indicated whether the interaction possessed significant structuring at the zero order (acts), first order (interacts), or second order (double interacts). The assumptions of Markov chain analysis were highly suitable for investigation of the research hypotheses because interaction analysis assumed a finite number of coding categories and a non-fixed, but finite number of acts coded. The application of transitional probabilities, or the conditional probability of going into another interaction state given the immediately preceding state determined whether the interaction was structured at the zero, first, or second order. Once the significant order was known, the comparisons for homogeneity (differences in the interaction patterns between different groups) could be performed.

The analysis of the last meetings of low and high consensus groups depended upon the Anderson-Goodman test (Anderson & Goodman, 1957; Hawes & Foley, 1973). This is a goodness of fit test and it generates results which are distributed similarly to a Chi-square curve. Those results demonstrate whether interaction pattern differences exist between the first or last meetings of high and low consensus groups. This application of Anderson-Goodman really tests the homogeneity of two different groups which are in this case high consensus groups or low consensus groups.

The preceding tests were particularly appropriate because they were all based in information theory. Buckley (1968, p. 191) indicated that the essence of information was the pattern or organization of the elements of a system. Because a group is a social system, its complexity rests in the sequence of behavioral acts and in the level of probability that the patterns will recur within ongoing interaction (Fisher, et. al., 1979, p. 8). Therefore, determining whether behavior sequences are significant at the zero, first, or second order determines the complexity of the group system. Fisher and Hawes (1971, p. 453) summed up the appropriateness of information theory statistics for examining a group system when they demonstrated that examination of inferentially derived affective and cognitive constructs did not really examine the basis for the group's existence. Study of directly observed and empirically measured interaction does assess the group process, and information theory statistics make the communication constituting the group's state of consensus quite clear, and therefore convenient to examine.

Each research question will be considered in the order proposed, and will be analyzed first on the relational level of communication and the on the content level of communication via investigation of the RELCOM and FIAS results respectively.

High/Low Consensus Initial Meeting Comparison

Relational communication differences were more numerous for the comparison of the initial meetings of high and low consensus groups, than for any other comparison in this study. The content of group discussion also differed at the beginning of interaction, but not with the variety of relational differences. Therefore, both RELCOM and FIAS results confirmed the existence of communication differences between high and low consensus groups at the onset of group communication.

RELCOM data analysis. Table 1 presents the RELCOM analysis of the differences between the first meetings of high and low consensus groups. The results of the homogeneity tests indicated significant differences between the groups for seven different antecedent states: structuring/equivalence (↑- →); structuring/deference (↑-↓-); equivalence/structuring (→ ↑-); equivalence/equivalence (→ →); equivalence/deference (→↓-); deference/equivalence (↓- →); and deference/deference (↓-↓-). Only the transition probabilities from the antecedent state to each of the subsequent states are included in Table 2. Cells which differentiate the rows are marked with an asterisk (*).

For the antecedent state of structuring/equivalence (↑- →), the subsequent state of equivalence (→) was most likely to occur in a low consensus group. In fact, for low consensus first group meetings, other subsequent states had a very low likelihood of occurrence, and the interaction was highly concentrated in the equivalence (→) category. Therefore, a structuring/equivalence/equivalence (↑- → →) double interact was most characteristic of low consensus interaction.

For the high consensus group, interaction was fairly evenly distributed over three subsequent states: structuring (↑ -), equivalence (→) and deference (↓ -). But equivalence (→) was far more likely in the low consensus group. Double interacts of structuring/equivalence/structuring (↑- →↑-), and structuring/equivalence/deference (↑-→↓-) were more characteristic of high consensus first meeting interaction.

TABLE 1

Antecedent States Accounting for Inhomogeneity of First Meetings of High/Low Consensus Groups (RELCOM)

Antecedent State	χ^2 Value
(↑+ ↑+)	.0000
(↑+ ↑-)	.0000
(↑+ →)	1.6667
(↑+ ↓-)	.7347
(↑+ ↓+)	.0000
(↑- ↑+)	5.0000
(↑- ↑-)	1.3418
(↑- →)	24.4142*
(↑- ↓-)	21.8929*
(↑- ↓+)	.0000
(→ ↑+)	1.0932
(→ ↑-)	23.0818*
(→ →)	61.0701*
(→ ↓+)	15.5976*
(→ ↓+)	.8750
(↓- ↑+)	5.0000
(↓- ↑-)	2.4324
(↓- →)	22.0429*
(↓- ↓-)	19.2213*
(↓- ↓+)	3.0000
(↓+ ↑+)	.0000
(↓+ ↑-)	.7500
(↓+ →)	3.9375
(↓+ ↓-)	5.0000
(↓+ ↓+)	.0000

*χ^2 > 13.2767, df = 4 (p < .01)

(↑+) = dominance
(↑-) = structuring
(→) = equivalence
(↓-) = deference
(↓+) = submissiveness

TABLE 2

Comparison of the RELCOM Results for the Initial Meetings of High and Low Consensus Groups

Antecedent States	Subsequent States				
↑- →	↑+	↑-	→	↓-	↓+
Low consensus	.0096	.1250	.7019	.1538	.0096
High consensus	.0000	.2323*	.3737	.3838*	.0101
↑- ↓-					
Low consensus	.0118	.4824*	.4353	.0588	.0118
High consensus	.0061	.2545	.4870	.2424*	.0000
→ ↑-					
Low consensus	.0370	.2593	.4573*	.2500	.0000
High consensus	.0000	.2331	.2699	.4947*	.0123
→ →					
Low consensus	.0122	.1086	.6835*	.1896	.0061
High consensus	.0017	.1128	.5141	.3715*	.0000
→ ↓-					
Low consensus	.0048	.1346*	.7692	.0913	.0000
High consensus	.0000	.0816	.7340	.1786*	.0058
↓- →					
Low consensus	.0091	.1000	.5818*	.3000	.0091
High consensus	.0017	.1233	.4410	.4340*	.0000
↓- ↓-					
Low consensus	.0357	.2500*	.6071	.0714	.0357
High consensus	.0000	.1053	.6667	.2281*	.0000

* Cell denoting comparative difference between two rows.

(↑+) = dominance
(↑-) = structuring
(→) = equivalence
(↓-) = deference
(↓+) = submissiveness

Low consensus groups thus tended toward equivalent symmetry (↑-→→).

Given the antecedent state of structuring/deference (↑-↓-), the subsequent state of deference (↓-) differentiated low consensus group discussion from that of high consensus groups. Equivalence (→) may have been the most likely subsequent state for either type of group, but this cell did not discriminate among the interactions. For the high consensus groups, deference (↓-) was more characteristic. In other words, low consensus interaction was more likely to follow a complementary pattern (↑-↓-↑-) and high consensus groups exhibited interaction patterns tending toward deferential symmetry (↑-↓-↓-).

Examination of the equivalence/structuring (→↑-) antecedent state revealed another trend in the differences between high and low consensus initial interaction. For the low consensus group, equivalence (→) was the most likely subsequent state and in high consensus groups, deference (↓-) was the most likely subsequent state. In this case, however, virtually no difference existed between the likelihood of structuring (↑-) in high and low consensus interaction. The double interact which characterized low consensus interaction was equivalence/structuring/equivalence (→↑-→) while equivalence/structuring/deference (→↑-↓-) represented high consensus interaction a trend toward complementarity.

Consideration of the equivalence/equivalence (→→) antecedent state provided results which were similar to earlier discriminations. The subsequent state of equivalence (→) was more likely to occur in low consensus discussion, while deference (↓-) was more discriminant of high consensus groups. The double interact which characterized low consensus discussion was continued equivalent symmetry. In high consensus groups' first meetings, equivalent symmetry tended toward deference (→→↓-).

The antecedent state of equivalence/deference (→↓-) demonstrated only slight differences between the interaction of high and low consensus groups. In both groups, equivalence (→) was the singlemost likely subsequent state but did not reflect a double interact which differentiated high consensus groups from low consensus groups. Although the differences were small, the trends were consistent with structuring (↑-) being most likely in a low consensus group and deference (↓-) being most likely in a high consensus group. Consequently, low consensus group interaction tended toward complementarity (→↓-↑-), and high consensus group discussion tended toward deferential symmetry (→↓-↓-).

The antecedent state of deference/equivalence (↓-→) possessed findings consistent with other analyses. For low consensus groups, the subsequent state of equivalence (→) was most likely and also comparatively more likely than it was in the high consensus interaction. In high consensus discussion, deference (↓-) was more likely than it was in a low consensus group. So a tendency toward equivalent symmetry (↓-→→) again characterized low consensus first group meeting interaction while deference/equivalence/deference (↓-→↓-) represented high consensus first meeting interaction.

Deference/deference (↓-↓-) had findings also consistent with other double interacts. Structuring (↑-) was likely in a low consensus group whereas deference (↓-) was much more likely in a high consensus group. Therefore, a double interact tending toward complementarity (↓↘-↑-) characterized low consensus initial interaction, deferential symmetry (↓-↓-↓-) again characterized high consensus groups.

As the initial statement of the hypothesis indicated, there was no previous research which demonstrated any difference at all in the development of high and low consensus group or which studied the initial interaction of both types of groups. The results of this study suggested that at the relational level, high consensus groups as a rule tended to respond to antecedent states with deference (↓-) while in low consensus group structuring (↑-) was a typical response pattern. In high consensus groups there was an apparent tendency to relinquish behavior options symmetrically, while in low consensus groups the exertion of a modified degree of control or equivalence was more typical.

In summary, the interaction patterns revealed by RELCOM analysis showed significant differences in the initial meetings of high and low consensus groups. Not only was the descriptive difference in initial interaction stages unexpected, but the extent of the difference (7 rows of the matrix) was even more unexpected. Comparing the specific rows of the matrices which accounted for the significant differences reported later allows for the description of interaction patters which discriminate the initial discussions of high and low consensus groups.

Although symmetrical interaction characterized both types of groups, high consensus groups tended toward deferential symmetry (↓-↓-↓-,→↓-↓-, ↑-↓-↓-) and low consensus groups tended toward equivalent symmetry (→→→, ↑→→,↓-→→). Deference may be interpreted as a tentative approach to a

novel social relationship and may reflect social insecurity on the part of members who eventually did achieve high consensus. Given the choice, members of the groups typically chose the deferential response at other times as well (↑→↓-, →→↓-, ↓→↓-). A response functioning as equivalence is often "small talk" attempting to deal with "safe" topics. Members of low consensus groups thus may have expressed their tentative approach to the new social situation through equivalence (→↑→) rather than the more risky deference.

Some complementary interaction also appears in the patterns during the first meetings. Members of high consensus groups consistently respond deferentially to create a double interact tending toward complementarity (→↑-↓-) and low consensus groups reflect complementary patterns but with a structuring response (↑↓-↑-, →↓↑, ↓-↓-↑). No apparent reason would account for low consensus groups to reflect complementary interaction with structuring responses. But if such members used equivalence as a "safe" interactional reaction, they may be more likely to resist the deferential response which is more clearly a more risk-of-self subsequent state. Under any circumstances, such a finding was not an anomaly, given prior assumptions of early group interaction.

FIAS data analysis. FIAS results for the between group comparison of the first meetings of high and low consensus groups demonstrated the presence of two significant differences in antecedent states. Table 3 presents these antecedent states. Antecedent states accounting for significant differences included: clarification/clarification (3-3) and agreement/clarification (5-3). Table 4 presents the subsequent states which were significant for the two antecedent states.

For the antecedent state of clarification/clarification (3-3), the subsequent state of clarification (3) was most likely for the low consensus group, while interpretation (1) was more probable in a high consensus first meeting. Therefore, a double interact of clarification/clarification/clarification (3-3-3) was characteristic of a low consensus first group meeting's discussion while a double interact of clarification/clarification/interpretation (3-3-1) represented high consensus interaction during the initial stages of task performance.

Given the antecedent state of agreement/clarification (5-3), clarification (3) was comparatively more likely to be a subsequent state in a high

TABLE 3

Antecedent States Accounting for the Inhomogeneity of First Meetings of High/Low Consensus Groups (FIAS)

Antecedent State	χ^2 Value
(1-1)	11.5194
(1-2)	6.1327
(1-3)	10.7873
(1-4)	.0000
(1-5)	9.7597
(1-6)	3.4286
(1-7)	4.0140
(2-1)	6.0499
(2-2)	4.3078
(2-3)	.9268
(2-4)	.0000
(2-5)	9.0967
(2-6)	4.8000
(2-7)	2.3111
(3-1)	8.4257
(3-2)	3.0119
(3-3)	34.4809*
(3-4)	.0000
(3-5)	12.2405
(3-6)	4.4444
(3-7)	5.6018
(4-1)	.0000
(4-2)	.0000
(4-3)	.0000
(4-4)	.0000
(4-5)	.0000
(4-6)	.0000
(4-7)	.0000
(5-1)	3.2636
(5-2)	6.6764
(5-3)	16.8217*
(5-4)	.0000
(5-5)	5.4209
(5-6)	1.3333
(5-7)	3.6223
(6-1)	5.2381
(6-2)	2.2222
(6-3)	1.2000

TABLE 3 (continued)

Antecedent State	χ^2 Value
(6-4)	.0000
(6-5)	3.0556
(6-6)	.0000
(6-7)	.0000
(7-1)	8.5811
(7-2)	.4444
(7-3)	4.7616
(7-4)	.0000
(7-5)	9.6961
(7-6)	5.0000
(7-7)	6.0227

*$\chi^2 > 16.8119$, 6 df ($p < .01$)

1 = interpretation
2 = substantiation
3 = clarification
4 = modification
5 = agreement
6 = disagreement
7 = procedural

TABLE 4

Comparison of the FIAS Results for the First Meetings of High and Low Consensus Groups

Antecedent States	Subsequent States						
	1	2	3	4	5	6	7
3 - 3							
Low consensus	.1388	.0536	.5584*	.0000	.1703	.0189	.0599
High consensus	.3080*	.0591	.4768	.0000	.1160	.0084	.0316
5 - 3							
Low consensus	.0769	.0308	.6308	.0000	.2000*	.0000	.0615
High consensus	.0972	.0000	.8611*	.0000	.0417	.0000	.0000

* Cell which denotes comparative difference between rows.

1 = interpretation
2 = substantiation
3 = clarification
4 = modification
5 = agreement
6 = disagreement
7 = procedural

consensus group while agreement differentiated the interaction of a low consensus group. Therefore, a double interact of agreement/clarification/clarification (5-3-3) was more descriptive of high consensus interaction and the agreement/clarification/agreement (5-3-5) sequence was more probable in a low consensus group.

At the content level of communication, subsequent state probabilities demonstrated that the double interacts of clarification/clarification/clarification (3-3-3) and agreement/clarification/agreement (5-3-5) characterized low consensus interaction. The double interacts of clarification/clarification/interpretation (3-3-1) and agreement/clarification/clarification (5-3-3) represented high consensus group discussion.

It was not this study's initial intent to contest previous research which concluded that stages of task development occurred during group discussion. However, that FIAS which previously led to the discovery of stages of development found differences in initial group meetings was most surprising because FIAS assumed all groups to progress through the same task stages. This study's findings indicated that low consensus groups tended to perpetuate clarification sequences which typically were the giving and requesting of clarification about the discussion topic as well as engaging in agreement fostering behavior. Results indicated that high consensus groups, on the other hand, tended to engage in clarification and interpretation, that is, tended to request extension and give extended explanation of statements and to posit position statements regarding decision-proposals without providing support for those comments. Although both types of interaction reflect tentative substantive approaches to the task content, no difference in interaction patterns was expected in the initial meetings.

High Consensus First/Final Meeting Comparison

The second research question was answered affirmatively on the content level of communication as the significant FIAS stationarity indicated. However, RELCOM stationarity was not significant, and differences were not found on the relational level of communication. Table 5 deals with the antecedent state which indicated specific differences between the initial and final meetings of high consensus groups.

TABLE 5

Antecedent States Accounting for Nonstationarity of High Consensus Groups (FIAS)

Antecedent State	χ^2 value
(1-1)	19.4949*
(1-2)	3.2347
(1-3)	2.9477
(1-4)	.0000
(1-5)	3.2446
(1-6)	4.0500
(1-7)	5.3125
(2-1)	7.2216
(2-2)	15.5759
(2-3)	4.0100
(2-4)	.0000
(2-5)	7.9782
(2-6)	6.3000
(2-7)	6.0000
(3-1)	1.4312
(3-2)	6.2239
(3-3)	9.3779
(3-4)	.0000
(3-5)	7.9263
(3-6)	4.2750
(3-7)	9.4857
(4-1)	.0000
(4-2)	.0000
(4-3)	.0000
(4-4)	.0000
(4-5)	.0000
(4-6)	.0000
(4-7)	.0000
(5-1)	7.6441
(5-2)	5.8290
(5-3)	2.4391
(5-4)	.0000
(5-5)	1.8105
(5-6)	2.0000
(5-7)	1.3500
(6-1)	3.6801
(6-2)	3.7500
(6-3)	3.2000
(6-4)	.0000
(6-5)	4.4444
(6-6)	2.2500
(6-7)	.0000

TABLE 5 (continued)

Antecedent State	χ^2 Value
(7-1)	5.8301
(7-2)	.1714
(7-3)	2.2034
(7-4)	.0000
(7-5)	2.9999
(7-6)	3.0000
(7-7)	3.6000

* χ^2 > 16.8119, df = 6 ($p < .01$)

1 = interpretation
2 = substantiation
3 = clarification
4 = modification
5 = agreement
6 = disagreement
7 = procedural

RELCOM data analysis. RELCOM results provided no significant differences between the interaction of high consensus groups. Even though Markovity indicated second order differences between high consensus first and final meetings, the stationarity test revealed no significant differences in second order patterns. Apparently the relationships formed quickly and remained the same throughout the group's existence. FIAS did discover significant disparities between the interaction patterns of initial and final meetings. This result is somewhat anomalous. Whereas task directed behaviors showed developmental change, behaviors which defined control relationships among group members did not change.

FIAS data analysis. Only one antecedent state accounted for the significant difference (See Table 6) between the first and last meetings of high consensus groups, interpretation/interpretation (1-1). For both high and low consensus groups, the most likely subsequent state was interpretation/interpretation/interpretation (1-1-1), but this double interact alone did not account for the interaction differences. Agreement was much more likely in an initial meeting, so that an interpretation/interpretation/agreement (1-1-5) double interact was more characteristic of the early stage of development. Final meetings were more likely than first meetings to include patterns of interpretation (1-1-1), substantiation (1-1-2), or clarification (1-1-3) following sustained interaction.

Interestingly enough, this characteristic difference between first and last meetings of high consensus groups is extremely similar to earlier comparison of the last meetings of high and low consensus groups. High consensus groups in the final stages of interaction tend to substantiate and clarify more than do low consensus groups (DeStephen, 1981). The interaction of interpretation/interpretation/agreement (1-1-5) characterized both low consensus group interaction and the initial meetings of high consensus groups. But such results should not be too surprising. After all, the initial meetings of high consensus groups should reflect a state of low consensus, and therefore, be similar to interaction of groups who do not achieve a final state of high consensus. Such similarity does support the expectation that consensus as an outcome could be reflected in the interaction patterns.

TABLE 6

Comparison of the FIAS Results for the First and Last Meetings of High Consensus Groups

Antecedent States	Subsequent States						
	1	2	3	4	5	6	7
1 - 1							
First meeting	.4469	.1313	.1620	.0000	.2291*	.0000	.0307
Last meeting	.4841*	.1614*	.1847*	.0000	.1423	.0149	.0127

* Cell which denotes comparative difference between rows.

1 = interpretation
2 = substantiation
3 = clarification
4 = modification
5 = agreement
6 = disagreement
7 = procedure

First and Final Meetings -- Low Consensus Groups

The nonsignificant RELCOM results indicated that there are no significant interaction differences between initial and final group discussion at the relational level of communication. However, significant FIAS results demonstrated that there exist clear differences between first and last group meetings on the content level of communication.

RELCOM data analysis. The RELCOM results confirmed that no significant changes occurred between the interaction of the first and last meetings of low consensus groups. Apparently, the relationships among group members remained much the same in the initial and final stages of task performance. It would seem that as with high consensus groups, relationships formed quickly and remained essentially the same throughout the group's task performance.

FIAS data analysis. Examination of the content level of communication differences between final high and low consensus meetings demonstrated that significant interaction differences exist between those two groups. Table 7 presents the antecedent states which accounted for the significant interaction differences, and Table 8 presents the subsequent state differences for the substantiation/agreement (2-5), and clarification/clarification (3-3) rows. These two antecedent states were significantly different for interaction variations between the initial and final stages of low consensus task performance.

For the antecedent state of substantiation/agreement (2-5) the interaction during the first meetings was differentiated on the basis of a greater tendency to lead to clarifying (2-5-3) or procedural responses (2-5-7). Final meeting interaction was concentrated in interpretation (2-5-1) and substantiation (2-5-2), both more clearly related to topical issues.

For the clarification/clarification (3-3) antecedent state, clarification (3) was the most likely subsequent state for either initial or final meetings. The secondary concentration of interaction in subsequent states revealed communication characteristic of first and last group meetings. The double interact of clarification/clarification/agreement (3-3-5) characterized low consensus initial meetings, while clarification/clarification/interpretation (3-3-1) was more representative of final low consensus discussion.

TABLE 7

Antecedent States Accounting for Nonstationarity of Low Consensus Groups (FIAS)

Antecedent State	χ^2 value
(1-1)	11.6747
(1-2)	9.7618
(1-3)	7.4522
(1-4)	.0000
(1-5)	1.8774
(1-6)	4.0000
(1-7)	4.9738
(2-1)	8.7770
(2-2)	5.1886
(2-3)	2.9548
(2-4)	.0000
(2-5)	16.8164*
(2-6)	5.0000
(2-7)	2.9167
(3-1)	7.6007
(3-2)	4.7400
(3-3)	30.7833*
(3-4)	.0000
(3-5)	8.3389
(3-6)	.8750
(3-7)	2.5669
(4-1)	.0000
(4-2)	.0000
(4-3)	.0000
(4-4)	.0000
(4-5)	.0000
(4-6)	.0000
(4-7)	.0000
(5-1)	2.0458
(5-2)	3.6249
(5-3)	11.4207
(5-4)	.0000
(5-5)	4.9812
(5-6)	.0000
(5-7)	3.9260
(6-1)	3.7333
(6-2)	.0000
(6-3)	.8333
(6-4)	.0000
(6-5)	.0000
(6-6)	.0000
(6-7)	.0000

TABLE 7 (continued)

Antecedent State	χ^2 value
(7-1)	8.2183
(7-2)	.4762
(7-3)	2.9331
(7-4)	.0000
(7-5)	5.7242
(7-6)	.0000
(7-7)	11.1230

* $\chi^2 > 16.8119$, df = 6 ($p < .01$)

1 = interpretation
2 = substantiation
3 = clarification
4 = modification
5 = agreement
6 = disagreement
7 = procedural

TABLE 8

Comparison of the FIAS results for the First and Last Meetings of Low Consensus Groups

Antecedent States	Subsequent States 1	2	3	4	5	6	7
2 - 5							
First meeting	.2381	.4643	.1310*	.0000	.0833	.0000	.0833
Last meeting	.3256*	.5581*	.0543	.0000	.0620	.0000	.0085
3 - 3							
First meeting	.1388	.0536	.5584*	.0000	.1703*	.0189	.0599
Last meeting	.2620*	.0873	.5099	.0000	.0930	.0000	.0479

* Cell which denotes comparative difference between rows.

1 = interpretation
2 = substantiation
3 = clarification
4 = modification
5 = agreement
6 = disagreement
7 = procedure

In low consensus group discussion, initial meetings tended to involve clarifying efforts (3-3-3, 2-5-3) and agreement with other members' clarifying statements (3-3-5). Final low consensus meetings, however, included more emphasis upon unsubstantiated (2-5-1, 3-3-1) and substantiated (2-5-2) responses regarding group proposals.

This study began with several assumptions and expectations. It was felt that consensus, an outcome of group interaction, could be discerned in the interaction of groups who actually do achieve this outcome. It was further assumed that group development would lead to consensus patterns only in the final stages of group interaction, and that all groups would probably begin with similar interaction patterns. Therefore, whether the group achieved consensus would affect the group interaction patterns only at the latter stage of group development but not at the earliest stage. Some of these expectations were met; others were not.

The results of the study do provide some evidence to support the belief that some interaction patterns are characteristic of groups that achieve consensus. Furthermore, some of the patterns which characterized the interaction of the initial meetings of high consensus groups, when groups were far from consensus outcomes, also characterized the interaction of the final meetings of low consensus groups. Thus, the results regarding the connection between consensus and communicative patterns are encouraging.

The extensive research literature on group development would lead one to assume that groups, during the process of group interaction, change through time in recognizable stages. The results of the present study, while not denying this assumption, are somewhat confusing. Comparing the first and last meetings of either high or low consensus groups revealed developmental differences, but only in terms of the content functions of communicative behavior. More perplexing are the results obtained from comparing the first meetings of high and low consensus groups. Those results also showed significant differences in terms of both content and relationship functions. In other words, whereas the results do suggest partial support for the development of groups through time, apparently high consensus groups and low consensus groups may begin at different points. The early stages of acclimation of group members to the task and to each other are apparently different for groups who achieve high consensus and those who do not.

Such a result was quite unexpected and may suggest the presence of compositional differences affecting group formation.

So why was there no significant stationarity difference according to the RELCOM analysis of the first and final meetings of both high and low consensus groups? FIAS, on the other hand, did indicate significant change in both types of groups. Two possible answers to this question come immediately to mind. First, it may be that FIAS itself is overly sensitive to task differences in decision-making, so that the interaction differences between the first and final meetings of high and low consensus groups may be a manifestation of this particular version of FIAS and not necessarily an indication of actual communication differences between initial and last meetings. Second, it may be that groups establish relationships during the course of the first meeting that remain consistent throughout the group's existence. Perhaps, then, the task aspects of the group discussion must change because a project was demanded of the group and the group had to gather information, consolidate that material and formulate it into a solution to the problem investigated. Therefore, what the group was doing had to change by virtue of the assigned task for all the groups. However, how the group members dealt with each other and coordinated their mutual effort did not have to change. In other words, the constraints of the task demanded different types of comments at various points in time. For example, during the first group meeting the group would have little if any information at its disposal, yet it would have to come up with possible problem areas it could investigate during the quarter. At this point, the group would engage in general unsupported comments about proposed topics. Later after a topic was selected and a solution developed to the selected problem, the group would logically be more likely to make comments which indicated understanding and varying degrees of support for the solution.

The interaction analysis results which indicated significant differences at both the content and relational levels of communication of initial group meetings added credence to those studies which altered group member composition and discovered subsequent differences in the consensus level reached (Burgoon, 1977; Klimoski & Karol, 1976; Levine, 1973; Nemiroff & King, 1975; Weed et al., 1966). Apparently interaction differences developed rapidly in low and high consensus groups. Whether this was due to the assembly effect

or to immediate differences in relationships among group members is not clear, because no checks were made on group composition. But because the initial differences were so unexpected, this indirect support of the importance of compositional factors is both intriguing and compelling.

A lingering question concerns the discrepant findings regarding group development. FIAS revealed developmental differences between first and last meetings, but RELCOM analysis did not. Some question remains as to whether this difference was a manifestation of the modified FIAS system this study employed. Because of this doubt and the contradictory content and relational findings, future research is necessary. First, continued dual content and relational analysis of the group's interaction should occur in order to see if the results consistently contradict each other. It may be that the lack of significant relational results stem from rater bias, and replication by other researchers would demonstrate whether or not groups do remain the same socially while experiencing task change.

Second, examination of all group meetings should be included in subsequent research, and content and relational analysis should continue. Study of all group meetings would enable the investigator to compare the initial meeting with all following meetings. Three benefits would result from such an inquiry. First, it would produce a more accurate understanding of how low and high consensus groups function over time. Particularly if other interaction analysis systems in addition to or instead of RELCOM and FIAS were used, one might find that low and high consensus groups behave differently throughout their history or that both groups begin their group existence differently. Those initially unique qualities may remain constant throughout the group's life. Until such research takes place, one can only tentatively assume that initial relationships remain constant and affect a group's ability to achieve consensus.

As previously noted, the most interaction sequence differences between high and low consensus groups occurred in the first group meetings. This finding added credence to past research which altered the group composition on the basis of member personality traits (Burgoon, 1977; Klimoski & Karol, 1976; Levine, 1973; Nemiroff & King, 1975; Weed et al., 1966). However, scholars cannot be certain of this conclusion until further research which more carefully examines group composition and group processes takes place.

While this study adds to existing knowledge about the communication behaviors characteristic of groups reaching differing levels of decision agreement or satisfaction, it also points to a great need for more research focusing heavily upon the content and relational levels of group communication. Hopefully this inquiry will serve as a helpful starting point for future small group consensus research.

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